IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Fedyk et al.	**Examiner:**	Blount, Steven
Serial No.:	09/645,186	**Group Art Unit:**	2616
Filed:	August 24, 2000	**Docket:**	NOR-091
For:	ALLOCATING NETWORK RESOURCES		

APPELLANTS' BRIEF ON APPEAL

Mail Stop Appeal Brief- Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

This Appeal Brief is presented in support of the Notice of Appeal to the Board of Patent Appeals and Interferences, filed on April 20, 2006, from the Final Rejection of Claims 1-2, 5, 8, 13-14, 20-21, 24, 27, 32-33, 39-40, 43, 46, and 51-54 of the above-identified application, as set forth in the Final Office Action mailed on February 28, 2006. The Commissioner of Patents and Trademarks is hereby authorized to charge Deposit Account No. 50-2295 in the amount of $500.00 which represents the requisite fee set forth in 37 C.F.R. §41.20(b)(2). The Appellants respectfully request consideration and reversal of the Examiner's rejections of pending claims.

APPELLANTS' BRIEF ON APPEAL

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1. REAL PARTY IN INTEREST

The real party in interest of the above-captioned patent application is the assignee: NORTEL NETWORKS LIMITED.

2. RELATED APPEALS AND INTERFERENCES

There are no known other prior or pending appeals, interferences, or judicial proceedings which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending Appeal.

3. STATUS OF THE CLAIMS

Claims 1-2, 5, 8, 13-14, 20-21, 24, 27, 32-33, 39, 40, 43, 46, and 51-54 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,687,167 issued to Bertin *et al* ("Bertin") in view of U.S. Patent Application 2002/0156914 issued to Lo *et al*. ("Lo") and are herein being appealed. Claims 3-4, 6-7, 9-12, 15-19, 22-23, 25-26, 28-31, 34-38, 41-42, 44-45, 47-50, and 55-59 have been canceled.

4. STATUS OF AMENDMENTS

No amendments have been filed subsequent to the Final Rejection.

5. SUMMARY OF THE INVENTION

In general, Claim 1 is directed to allocating a network resource to a data path having a predetermined priority. Claim 1 requires selecting a network path having sufficient network resource available, allocating the network resource to the data path when the network path has an acceptable cost, and taking network resource from a network path having a priority lower than the predetermined priority when no network path having sufficient network resource and acceptable cost is selected.

The other independent claims have limitations similar to the limitations of Claim 1. In Claim 13, the data path is a label switched path ("LSP") configured through a multiprotocol label switching ("MPLS") network. Claim 20 is drawn to a computer program comprising instructions that cause a processor to perform the method of Claim 1. Claim 32 is drawn to a computer program comprising instructions that cause a processor to perform the method of Claim 13. Claim 39 is drawn to an apparatus comprising circuitry for performing the method of Claim 1. Claim 53 is drawn to an apparatus comprising circuitry for performing Claim 13.

6. ISSUES PRESENTED FOR REVIEW

Claims 1-2, 5, 8, 13-14, 20-21, 24, 27, 32-33, 39, 40, 43, 46, and 51-54 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,687,167 issued to Bertin *et al* ("Bertin") in view of U.S. Patent Application 2002/0156914 issued to Lo *et al*. ("Lo"). With regard to all pending independent claims (i.e., Claims 1, 13, 20, 32, 39, and 53), the Examiner alleges that:

> . . . Bertin et al teach finding the best path through a network wherein the best path has the fewest number of links (i.e., hops, see col 11 lines 24+) and then preempting other existing connections "in order to allow the new connection to be established on the link" wherein the new and old links are assigned individual priority numbers (see col 14 lines 5+). Bertin et al also teaches preempting only lower priority requests. See col 14 lines 26+. While Bertin et al does discuss the consideration of the number of hops in forming the initial connection (see col 11 lines 34+), Bertin et al does not teach taking this into consideration when preempting the other connections in order to add bandwidth to the existing connection, as discussed above.
>
> Lo et al teaches, in a similar manner, adjusting the bandwidth by allocating resources amongst different data connections. Lo et al also teaches that:
>
> "These increases and decreases in bandwidth allocation are restricted to remain within an operating range, which is determined by the user-defined policies (or SLAs)." See page 5, par 73. See also the LBWA description in par 85.
>
> It would have been obvious to one of ordinary skill in the art at the time of the invention to have placed an operating range (ie, cost limiting factor) on the system of Bertin in light of the teachings of Lo et al in order to prevent the allocation of bandwidth from another connection when the other connection is too costly (ie, in Bertin et al, when the other connection would have too many hops to justify the use of this additional bandwidth for the connection in this manner).

It is noted that Lo et al teaches carrying out the above process in an MPLS environment, and that the management unit described in par 48 of Lo et al operates under the control of software driven processes.

7. ARGUMENT

A. The present claims are patentable over the combination of cited references because one of the cited references is not prior art.

The filing date of Lo is February 8, 2001, which is after the filing date of the Applicants' application (i.e., August 24, 2000). Lo does claim priority from a Provisional application (Application No. 60/208,946) that was filed prior to the filing of the Applicants' application. However, the alleged teachings of Lo do not appear to be described in the Provisional application. The Provisional application is a substantially different document than what was published as U.S. Publication No. 2002/0156914 (i.e., Lo) and the Examiner cites from the Publication document not from the Provisional application. If the alleged teachings relied upon by the Examiner are not in the Provisional application then Lo does not fall in any of the prior art categories of 35 U.S.C. §102 and is not prior art.

B. The cited references, even if considered as prior art and properly combinable, do not teach or suggest the present invention as claimed.

None of the cited art, taken or alone or in combination, teaches or suggests Claim 1 as pending. Claim 1 requires selecting a network path having sufficient network resource available, allocating the network resource to the data path when the network path has an acceptable cost, and taking network resource from a network path having a priority lower than the predetermined priority when no network path having sufficient network resource and acceptable cost is selected. All other claims contain other limitations in addition to these limitations.

Applicants disagree with the Examiner's assessment of the teachings of both Bertin and Lo taken alone or in combination with each other. Applicants agree with the Examiner's assessment that Bertin does not teach considering hop count when preempting the another connection in order to add bandwidth to an existing connection. Moreover, Bertin does not suggest a motivation for considering hop count, or any other cost measure, when preempting other connections.

Bertin teaches a method of preemption in great detail. However, Bertin does not appear to teach or suggest the point at which preemption is required by the present invention. In Bertin, a Path Selection process first chooses a path (actually two paths - one for each direction) and then a Bandwidth Reservation process reserves bandwidth on the chosen path. The Bandwidth Reservation process then either reserves available bandwidth on each link of the chosen path or, alternately, preempts connections from using a link if the new connection has a higher priority. *See* Column 12, line 59 to Column 14, line 4. Thus, Bertin also does not teach or suggest *looking for a different path that might have sufficient bandwidth* before preempting bandwidth on a chosen path.

In the present invention, on the other hand, the taking of network resource (e.g., bandwidth) from a network path having lower priority only occurs when no network path having sufficient network resource and acceptable cost is found. The present invention first selects a network path having sufficient network resource available. This generally involves selecting a network path and checking the selected path for sufficient network resource. If this selected path does not have sufficient network resource, then *another network path is selected.* This continues until either there are no more network paths to be selected or a selected network path is found that has sufficient network resource. Thus, the present invention, unlike Bertin, will select multiple network paths until one is found that has sufficient network resource or all network paths have been selected. In the present invention, unlike Bertin, network resource is taken only when no network path can be selected that has sufficient network resource and acceptable cost.

Lo adds nothing to Bertin even if properly combinable. In paragraphs 65 through 87 of Lo (i.e., the section on Path Bandwidth Allocation), there is no discussion of cost (e.g., hop count) at all. While Lo does discuss increasing, decreasing, and redistributing bandwidth, this discussion does not refer to the cost of increasing, decreasing, or redistributing bandwidth. The operating range of paragraph 73 that the Examiner cites refers to a range of bandwidths determined by Service Level Agreements ("SLAs") not to a range of cost limiting factors as asserted by the Examiner.

In the Advisory Action mailed May 3, 2006, the Examiner states the following:

> The examiner has considered applicants remark that "The operating range of paragraph 73 that the Examiner cites refers to a range of bandwidths determined by Service Level Agreements ("SLAs") not to a range of cost limiting factors as asserted by the Examiner. In response, the examiner notes that it is

> stated that "the increases and decreases in bandwidth allocation are restricted to remain within an operating range, which is determined by user-defined policies (or SLAs)." The examiner believes that one of ordinary skill in the art would realize that the meaning of this passage is that it places upper and lower bounds, or cost limits, on the amount of bandwidth that may be borrowed. The examiner notes that the term SLA's is relevant in this case only because it indicates that the user is the one who sets the predetermined values. Also, the examiner respectfully notes that although the words "acceptable cost" are not explicitly used, Lo et al effectively teach this, because in Lo et al, an acceptable range of values is defined by the operating range, wherein if an amount of bandwidth is borrowed which lies outside of this range of bandwidth, ie, if the cost is too high or too low outside this range, than it is unacceptable to borrow the bandwidth. In summary, Lo et al teach the use of a range of values outside of which it is unacceptable to bandwidth. This is at the very least an obvious method of defining acceptable cost values which may be utilized.

In this passage, the Examiner appears to be equating the upper bound of a bandwidth range with an acceptable cost limit. This is not the case. In fact, if this *were* the case, all one would have to do to determine whether to allocate the bandwidth to a data path is to compare the amount of bandwidth attempting to be allocated with the upper bound of the range of bandwidths. If the bandwidth is within the range, then the bandwidth would be allocated from some network path. However, this says nothing about from which network path the bandwidth is allocated.

The present invention, on the other hand, involves choosing a network path from which a network resource (e.g., bandwidth) will be allocated. The present invention does not determine whether an amount of a network resource (e.g., bandwidth) is within a predetermined range. In the present invention, the only time the network resource would not get allocated to a data path is if there is no network path available with sufficient resources and an acceptable cost (e.g., acceptable number of hops) and there is no network path available with lower priority from which resources can be allocated. That is, the present invention determines from which network path network resources are allocated. The resources are then allocated to the data path.

8. SUMMARY

Applicants contend that one of the cited references is not prior art. Applicants also contend that the limitations in Claim 1 are essentially found in all claims and that these limitations are not taught or suggested by the cited references, even if the references are taken as prior art and properly combinable. Applicant respectfully requests that the rejection of all claims be withdrawn and that a Notice of Allowance be issued in this matter.

Respectfully submitted,

Date: June 16, 2006
Reg. No.: 37,548

/Stanley Hill/
Stanley K. Hill
Attorney for Applicant(s)
Guerin & Rodriguez, LLP
5 Mount Royal Avenue
Marlborough, MA 01752

Tel. No.: (508) 303-2003
Fax No.: (508) 303-0005

APPENDIX I

The Claims Appendix

1. (Previously Presented) A method for allocating a network resource to a data path having a predetermined priority, comprising:

selecting a network path having sufficient network resource available;

allocating the network resource to the data path when the selected network path has an acceptable cost; and

taking network resource from a network path having a priority lower than the predetermined priority when no network path having sufficient network resource and acceptable cost is selected.

2. (Original) The method of claim 1, wherein the network resource comprises bandwidth.

3-4. (Canceled)

5. (Previously Presented) The method of claim 1, wherein the cost is obtained by reference to a topology database for determining a path between a source and a destination.

6-7. (Canceled)

8. (Original) The method of claim 1, wherein the data path comprises a label switched path (LSP) on a multiprotocol label switching (MPLS) network.

9-12. (Canceled)

13. (Previously Presented) A method of configuring a label switched path (LSP) through a multiprotocol label switching (MPLS) network having a predetermined priority, the method comprising:

selecting a network path in the MPLS having sufficient network resource available;

allocating the network resource to the LSP when the selected network path has an acceptable cost; and

taking network resource from a network path having a priority lower than the predetermined priority when no network path having sufficient network resource and acceptable cost is selected.

14. (Previously Presented) The method of claim 13, wherein the cost is obtained by reference to a topology database for determining a path between a source and a destination.

15-19. (Canceled)

20. (Previously Presented) A computer program stored on a computer-readable medium for allocating a network resource to a data path having a predetermined priority, the computer program comprising instructions that cause a processor to:

select a network path having sufficient network resource available;

allocate the network resource to the data path when the selected network path has an acceptable cost; and

take network resource from a network path having a priority lower than the predetermined priority when no network path having sufficient network resource and acceptable cost is selected.

21. (Original) The computer program of claim 20, wherein the network resource comprises bandwidth.

22-23. (Canceled)

24. (Previously Presented) The computer program of claim 20, wherein the cost is obtained by reference to a topology database for determining a path between a source and a destination.

25-26. (Canceled)

27. (Original) The computer program of claim 20, wherein the data path comprises a label switched path (LSP) on a multiprotocol label switching (MPLS) network.

28-31. (Canceled)

32. (Previously Presented) A computer program stored on a computer-readable medium for configuring a label switched path (LSP) through a multiprotocol label switching (MPLS) network having a predetermined priority, the computer program comprising instructions that cause a processor to:

select a network path in the MPLS having sufficient network resource available;

allocate the network resource to the LSP when the selected network path has an acceptable cost; and

take network resource from a network path having a priority lower than the predetermined priority when no network path having sufficient network resource and acceptable cost is selected.

33. (Previously Presented) The computer program of claim 32, wherein the cost is obtained by reference to a topology database for determining a path between a source and a destination.

34-38. (Canceled)

39. (Previously Presented) An apparatus for allocating a network resource to a data path having a predetermined priority, the apparatus comprising circuitry which:

selects a network path having sufficient network resource available;

allocates the network resource to the data path when the selected network path has an acceptable cost; and

takes network resource from a network path having a priority lower than the predetermined priority when no network path having sufficient network resource and acceptable cost is selected.

40. (Original) The apparatus of claim 39, wherein the network resource comprises bandwidth.

41-42. (Canceled)

43. (Previously Presented) The apparatus of claim 39, wherein the ~~number of hops~~ cost is obtained by reference to a topology database for determining a path between the source and the destination.

44-45. (Canceled)

46. (Original) The apparatus of claim 39, wherein the data path comprises a label switched path (LSP) on a multiprotocol label switching (MPLS) network.

47-50. (Canceled)

51. (Original) The apparatus of claim 39, wherein the circuitry comprises a memory which stores computer instructions and a processor which executes the computer instructions.

52. (Original) The apparatus of claim 39, wherein the circuitry comprises one or more of an integrated circuit and programmable logic.

53. (Previously Presented) An apparatus for configuring a label switched path (LSP) through a multiprotocol label switching (MPLS) network having a predetermined priority, the apparatus comprising circuitry which:

selects a network path in the MPLS having sufficient network resource available;

allocates the network resource to the LSP when the selected network path has an acceptable cost; and

takes network resource from a network path having a priority lower than the predetermined priority when no network path having sufficient network resource and acceptable cost is selected.

54. (Previously Presented) The apparatus of claim 53, wherein the cost is obtained by reference to a topology database for determining a path between a source and a destination.

55-59. (Canceled)

APPENDIX II

Evidence Appendix

There is no known pertinent evidence to be cited in Appendix II.

APPENDIX III

Related Proceedings Appendix

There are no known other prior or pending appeals, interferences, or judicial proceedings which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending Appeal.